WHAT I CLAIM IS:

1. A method of producing metal particles, comprising:

jetting out a metal salt solution and a reducing agent solution from respective nozzles to a mixing chamber, to give a mixed reaction solution thereof; and

discharging the mixed reaction solution from a discharging port having a diameter smaller than a diameter of the mixing chamber,

wherein one of the metal salt solution and the reducing agent solution is made into straightly-going flow, the straightly-going flow is jetted from a nozzle having a diameter smaller than the diameter of the mixing chamber to the mixing chamber, and the other solution is jetted out, in the form of orthogonal flow which is substantially orthogonal to the straightly-going flow, to a position before a position where eddy viscosity generated by jetting the straightly-going flow into the mixing chamber would be maximum.

2. The method according to Claim 1, wherein the straightly-going flow is in a thread line form.

3. The method according to Claim 1, wherein a flow

velocity of the orthogonal flow when being jetted out is equivalent to or less than a flow velocity of the straightly-going flow when being jetted out.

4. A method of producing a dispersion containing metal particles, comprising:

providing a multistage ultrafiltration apparatus, in addition to a mixer and/or a reaction vessel that contains a particle dispersion in which the metal particles produced by the method according to Claim 1 are dispersed; and

continuously removing a salt dissolved in the particle dispersion.

5. A method of producing metal particles, comprising:

jetting out a metal salt solution and a reducing agent solution from respective nozzles to a mixing chamber, to give a mixed reaction solution thereof; and

discharging the mixed reaction solution from a discharging port having a diameter smaller than a diameter of the mixing chamber,

wherein one of the metal salt solution and the reducing agent solution is made into straightly-going flow, the straightly-going flow is jetted from a nozzle having a

diameter smaller than the diameter of the mixing chamber to the mixing chamber, and the other solution is jetted out, in the form of orthogonal flow which is substantially orthogonal to the straightly-going flow, to a position within a range where a velocity Vz of the straightly-going flow is represented by the following formula (1), in a direction along which the maximum velocity of the straightly-going flow is exhibited when the straightly-going flow is jetted into the mixing camber:

Formula (1) $(1/10)\,Vz0 < Vz < Vz0$

wherein Vz0 represents a velocity of the straightly-going flow at an outlet of the nozzle in the direction along which the maximum velocity of the straightly-going flow is exhibited when the straightly-going flow is jetted into the mixing camber.

6. The method according to Claim 5, wherein the straightly-going flow is in a thread line form.

7. The method according to Claim 5, wherein a flow velocity of the orthogonal flow when being jetted out is equivalent to or less than a flow velocity of the straightly-going flow when being jetted out.

8. A method of producing a dispersion containing metal particles, comprising:

providing a multistage ultrafiltration apparatus, in addition to a mixer and/or a reaction vessel that contains a particle dispersion in which the metal particles produced by the method according to Claim 5 are dispersed; and

continuously removing a salt dissolved in the particle dispersion.

9. A method of producing metal fine-particles, comprising:

jetting out a metal ion-containing solution and a hydroxide ion-containing solution from respective nozzles to a mixing chamber, to give a mixed reaction solution thereof; and

discharging the mixed reaction solution from a discharging port having a diameter smaller than a diameter of the mixing chamber,

wherein one of the metal ion-containing solution and the hydroxide ion-containing solution is made into straightly-going flow, the straightly-going flow is jetted from a nozzle having a diameter smaller than the diameter of the mixing chamber to the mixing chamber, and the other solution is jetted out, in the form of orthogonal flow

which is substantially orthogonal to the straightly-going flow, to a position before a position where eddy viscosity generated by jetting the straightly-going flow into the mixing chamber would be maximum.

10. The method according to Claim 9, wherein the metal fine-particles are fine particles of metal hydroxide.

11. The method according to Claim 9, wherein the straightly-going flow is in a thread line form.

12. The method according to Claim 9, wherein a flow velocity of the orthogonal flow when being jetted out is equivalent to or less than a flow velocity of the straightly-going flow when being jetted out.

13. A method of producing a dispersion containing metal fine-particles, comprising:

providing a multistage ultrafiltration apparatus, in addition to a mixer and/or a reaction vessel that contains a fine-particle dispersion in which the metal fine-particles produced by the method according to Claim 9 are dispersed; and

continuously removing a salt dissolved in the fine-particle dispersion.

14. A metal oxide, which is obtained by oxidizing the metal fine-particles produced by the method according to Claim 9.

15. A method of producing metal fine-particles, comprising:

jetting out a metal ion-containing solution and a hydroxide ion-containing solution from respective nozzles to a mixing chamber, to give a mixed reaction solution thereof; and

discharging the mixed reaction solution from a discharging port having a diameter smaller than a diameter of the mixing chamber,

wherein one of the metal ion-containing solution and the hydroxide ion-containing solution is made into straightly-going flow, the straightly-going flow is jetted from a nozzle having a diameter smaller than the diameter of the mixing chamber to the mixing chamber, and the other solution is jetted out, in the form of orthogonal flow which is substantially orthogonal to the straightly-going flow, to a position within a range where a velocity Vz of the straightly-going flow is represented by the following formula (1), in a direction along which the maximum velocity of the straightly-going flow is exhibited when

the straightly-going flow is jetted into the mixing camber:

Formula (1) $(1/10)\,V_{z0} < V_z < V_{z0}$

wherein Vz0 represents a velocity of the straightly-going flow at an outlet of the nozzle in the direction along which the maximum velocity of the straightly-going flow is exhibited when the straightly-going flow is jetted into the mixing camber.

16. The method according to Claim 15, wherein the metal fine-particles are fine particles of metal hydroxide.

17. The method according to Claim 15, wherein the straightly-going flow is in a thread line form.

18. The method according to Claim 15, wherein a flow velocity of the orthogonal flow when being jetted out is equivalent to or less than a flow velocity of the straightly-going flow when being jetted out.

19. A method of producing a dispersion containing metal fine-particles, comprising:

providing a multistage ultrafiltration apparatus, in addition to a mixer and/or a reaction vessel that contains

a fine-particle dispersion in which the metal fine-particles produced by the method according to Claim 15 are dispersed; and

continuously removing a salt dissolved in the fine-particle dispersion.

20. A metal oxide, which is obtained by oxidizing the metal fine-particles produced by the method according to Claim 15.